

CLAIM AMENDMENTS

The current claim status is:

Claim 1. (currently amended) A system for providing a plurality of different combinatorial catalyst materials ~~[[,each]]~~ for ~~[[subsequent]]~~ evaluation ~~[[in a predetermined operation]]~~ comprising:

a physical vapor deposition apparatus including a sealable chamber having an access means, the chamber including a plurality of separately controllable plasma sources radially disposed about a central location within the chamber such that the plasma directed from the source may be focused upon the central location and at least one substrate disposed at the central location of the chamber having ~~[[an area]]~~ a plurality of discrete separated areas thereon to which the plasma is directed ~~[[from a plasma source]]~~, at least one of the plurality of separately controllable plasma sources comprising a cluster of more than one plasma gun ~~[[arranged in a cluster,]]~~ oriented such that each gun in the cluster is focused toward the central location ~~[[substrate]]~~;

the at least one substrate being controllably positionable within the chamber such that a selected area upon the substrate may be positioned in accordance with a matrix of x, y and z coordinates in an alignment with respect to the focus of ~~[[such that separate areas defined upon the surface of the substrate are selectively capable of being individually aligned with respect to]]~~ each of the plurality of separately controllable plasma sources;

a means for controlling the plasma sources and the substrate such that each selected ~~[[separate]]~~ area ~~[[defined]]~~ upon the substrate may be sequentially aligned with respect to each plasma source according to predetermined parameters that determine the exposure of the area to one or more than one of the controllable plasma sources.

Claim 2. (currently amended) The system of claim 1 in which the means for controlling the plasma sources comprises ~~[[a controlling table]]~~ programmable parameters determining for a specified flux of plasma power and time, the characteristics of the material deposited by the plasma source upon the selected area of the substrate.

Claim 3. (currently amended) The system of claim 1 in which the substrate is positioned with respect to a rotator ~~[[mechanism]]~~ centrally disposed within the chamber such that the selected area of the substrate can be ~~[[sequentially directed]]~~ rotated within the central location of the chamber to align the area with the focus of the ~~[[separately to]]~~ one or more ~~[[clusters of]]~~ plasma sources ~~[[in the chamber]]~~.

Claim 4. (cancelled)

Claim 5. (currently amended) The system of claim 2 or claim 3 ~~[[or claim 4]]~~ wherein the substrate is a plane surface and ~~[[in which]]~~ the approximate focus of each plasma source and the plane surface ~~[[approximate transverse center]]~~ of the substrate are each maintained within the chamber in alignment with each other ~~[[approximately the same plane]]~~.

Claim 6. (currently amended) The system of claim 3 ~~[[or claim 4]]~~ in which the substrate includes multiple separately defined circular areas and is centrally positioned within the chamber, the substrate being ~~[[and is]]~~ moveable with respect to a program controlled x-y table such that ~~[[the separate areas defined]]~~ each separately defined area upon the surface of the substrate ~~[[are]]~~ may be positioned by control means for the x-y table in essential alignment with the focus of ~~[[the]]~~ one or more than one ~~[[of the]]~~ plasma source~~[[s]]~~.

Claim 7. (currently amended) The system of claim 3 in which each plasma source is positioned within the chamber at a same distance from the central location ~~[[coating spot]]~~.

Claim 8. (currently amended) The system of claim ~~[[6]]~~ 6 in which the multiple separately defined selected areas of the substrate ~~[[includes]]~~ comprise a plurality of separately defined areas arranged a matrix defined by ~~[[in]]~~ columns and rows ~~[[in a matrix]]~~.

Claim 9. (currently amended) The system of claim ~~[[6]]~~ 8 in which the relationship of the number ~~(_N)~~ of separately defined areas in the rows to the number of separately defined areas ~~[[_N]]~~ in the columns is $rows_N = columns_N$.

Claim 10. (currently amended) The system of claim ~~[[6]]~~ 8 in which the relationship of the number ~~(_N)~~ of separately defined areas in one column to ~~[[of]]~~ the number of separately defined areas in an adjacent column is $areas\ in\ column_N = N$ and areas in adjacent column ~~[[_{N+1}]]~~ $_{N+1} = N+1$.

Claim 11. (currently amended) The system of claim ~~[[6]]~~ 8 in which the relationship of the number of separately defined areas in one row to ~~[[of]]~~ the number of separately defined areas in an adjacent row is $areas\ in\ row_N = N$ and areas in adjacent row ~~[[_{N-1}]]~~ $_{N-1} = N-1$.

Claim 12. (currently amended) The system of claim 1 in which the plasma sources are controlled such that the materials originating from the sources are deposited ~~[[on an]]~~ upon an area of the substrate in at least one of 1) a sequential layer ~~[[by layer]]~~ deposition and 2) a co-deposition ~~[[relationship]]~~.

Claim 13. (currently amended) ~~[[A substrate holder for the]]~~ The system of claim 8 ~~[[comprising]]~~ wherein the substrate comprises a side surface of a block

positioned within the central location of the chamber, the block having a multiplicity of
[[longitudinally-extending]] cylindrical substrate elements extending from the side
surface thereof, each cylindrical substrate element individually defining a selected
area, [[substrates]] the cylindrical substrate elements maintained in an array of
cylindrical columns and cylindrical rows formed within [[a]] the block, in which [[an
]] the upper surfaces of the cylindrical substrate elements comprise the discrete
areas [[is]] exposed to [[the ions-directed-from]] the sources.

Claim 14. (currently amended) The system [[holder]] of claim [[4+]] 13 in which
the cylindrical substrate elements are [[the upper surface of the substrate is]] inset
within the block in a matrix and a plate having a matrix of openings concentric with
the matrix of elements in the block is applied facing the surface of the block, such
that the openings in the plate are aligned with the elements and the cross-section
area of an opening in the plate [[upper surface of the column in the block in which
the substrate is positioned is less than the [[transverse]] cross-section area of the [[
upper]] surface of the corresponding concentric cylindrical [[substrate]] element [[
exposed to the ions-directed-from the sources]].

Claim 15. (currently amended) The system of claim [[4]] 6 in which the means
for controlling the sources of different ions includes programmed means for selecting
one or more than one of at least: 1) [[means-for-selecting]] a plasma source within a
cluster; 2) [[means-for-controlling]] the power and the duration of operation of the
source; and 3) [[means-for-positioning]] the position of the substrate such that a
selected area of the substrate is exposed to the plasma source for the duration of
operation determined.

Claim 16. (original) The system of claim 15 in which the means for selecting a
plasma source and the means for controlling the power and the duration of operation
of the source includes means for controlling the sources in essentially the same

operation such that plasma materials from the sources are co-deposited with respect to an area on the surface of the substrate.

Claim 17. (original) The system of claim 15 in which the means for selecting a plasma source and the means for controlling the power and the duration of operation of the source includes means for controlling the sources in essentially the same operation such that plasma materials from the sources are deposited as layers with respect to an area on the surface of the substrate.

Claim 18. (new) The system of claim 13 in which the means for controlling the sources of different ions includes programmed means for selecting one or more than one of at least: 1) a plasma source within a cluster; 2) the power and the duration of operation of the source; and 3) the position of the substrate such that a selected area of the substrate is exposed to the plasma source for the duration of operation determined.

Claim 19. (new) The system of claim 18 in which the means for selecting a plasma source and the means for controlling the power and the duration of operation of the source includes means for controlling the sources in essentially the same operation such that plasma materials from the sources are co-deposited with respect to an area on the surface of the substrate.

Claim 20. (new) The system of claim 18 in which the means for selecting a plasma source and the means for controlling the power and the duration of operation of the source includes means for controlling the sources in essentially the same operation such that plasma materials from the sources are deposited as layers with respect to an area on the surface of the substrate.